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ABSTRACT

A study examined emergent readers' reconstructions of familiar storybook texts for evidence of cohesive harmony. The study focused on: the range of cohesive harmony; whether the level of cohesive harmony would reach linguistic significance; and whether patterns within the original text would emerge. Fourteen inner-city kindergartners were interviewed after having heard a story 3-4 times in the week prior to the interview. Results indicated that children's story reconstructions ranged from having no cohesive harmony to a level that approached the original text. Slightly over half of the reconstructed texts reached linguistic significance. Several children seemed to focus on and elaborate upon the patterned segments of the original text. Further study of text types as well as longitudinal research is necessary to increase understanding of the development of cohesive harmony in composition-related tasks among young children. (Four figures are included; 20 references are attached.) (Author/PRA)

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Cohesive Harmony in Stories Reconstructed by Emergent Readers

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Running Head: COHESIVE HARMONY

Author Notes

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Abstract

This study examined emergent readers' reconstructions of familiar storybook texts for evidence of cohesive harmony (Halliday & Hasan, 1976; Hasan, 1984; Halliday, 1985). The study focused on the following questions: (1) What is the range of cohesive harmony in stories reconstructed by emergent readers? (2) Does the level of cohesive harmony in these reconstructed stories reach linguistic significance? (3) Do patterns within the original text emerge in children's story reconstructions? Children's story reconstructions ranged from having no cohesive harmony to a level that approached the original text. Slightly over half of the reconstructed texts reached linguistic significance. Several children seemed to focus on and elaborate upon the patterned segments of the original text. Further study of text types as well as longitudinal research is necessary to increase understanding of the development of cohesive harmony in composition-related tasks among young children.

Cohesive Harmony in Stories Reconstructed by Emergent Readers

Researchers have recently begun to describe young children's early reading and writing attempts as they interact with written language found in books and as they attempt to communicate in writing. The exploration and gradual acquisition of literacy-related knowledge prior to conventional reading and writing has been labelled "emergent literacy" (Teale & Sulzby, 1986). One assumption underlying the concept of emergent literacy is that development during the pre-school years (birth through age five) has a continuous relationship, rather than a discontinuous one, to what develops after formal education is begun.

Based on the assumption of developmental continuity, this study explored emergent readers' reconstructed story texts for evidence of cohesive harmony. Recent research has indicated good (conventional) readers at the elementary level create stories that are more complex and cohesive than stories created by poor readers (Cox, Shanahan & Sulzby, 1990). Other research suggests children receive little formal instruction in cohesion (Baumann, 1986). When, then, do children develop specific text-making knowledges? Young children reared in a literate environment, but not yet

conventionally literate, are able to create "text" and treat it as an object of knowledge (Sulzby & Otto, 1982). Although young children's early reading and writing attempts have been described as oral language-like or written language-like, little attention (See further, Pappas, 1981, 1985; Sulzby, 1985) has been given to exploring structural properties of those "texts."

Cohesive harmony analysis is a method of examining the way a text is constructed (Halliday & Hasan 1976; Hasan, 1984; Halliday, 1985). Cohesive harmony analysis focuses on the chains of meaning created throughout a text which make it hold together, i.e. lexical redundancies within chains and across t-units. Analysis of cohesion in texts created by elementary children has described how specific grammatical devices (i.e. substitution, ellipsis, and conjunctions) were used to create cohesive texts (King, 1989; King & Rentel, 1981). According to Pappas (1985) the concept of narrative competence demands that stories "hang together" in addition to having some overall macrostructure. Pappas utilized cohesive harmony analysis in her study of first grade children's narrative capabilities in three composition-related tasks: story retelling, story dictation, and child-originated written stories. She

reported children's narratives were influenced by the nature or type of the compositional task, with cohesive harmony significantly higher in the retelling, than in the dictation or writing contexts.

The use of cohesive harmony analysis has been only recently extended to texts created by emergent readers and writers (Cox, 1990; Otto, 1990b). Emergent readers and writers are by definition not reading and writing conventionally. Thus, asking these children to produce a conventionally written text on paper that could be collected for subsequent analysis is not an appropriate task. Instead composition-related tasks (e.g. retelling, dictation, reading from emergent writing) have been used to examine emergent readers' and writers' text-making knowledges.

Cox (1990) collected preschool and kindergarten children's oral monologues and dictated stories and concluded that complex structural knowledge, i.e. cohesive harmony, is known by at least some children before formal schooling or reading instruction is begun.

Otto (1990b) focused on preschool and kindergarten children's "readings" of stories they had first created on paper using a variety of writing systems (e.g. drawing, scribble, patterned letters, invented spelling). About half of the children created a text

orally that was linguistically significant with respect to cohesive harmony. For some children, story text complexity appeared to be constrained by their efforts to encode their story on paper.

In the study reported in this paper, emergent readers' attempted storybook reconstructions were the composition-related task explored. Such readings require the child to reconstruct the text through recall and by utilizing the storybooks' illustrations (see further Golden and Gerber, 1990). This text reconstruction is not compositional in the sense that an original text is created, however, since the emergent reader is not yet reading conventionally, the attempted reading task draws out knowledge the child has about text composition.

The design of this study attempted to control memory for text in two ways. First the book selected had a text that was sufficiently complex to make rote memorization unlikely. Second, exposure to the book was controlled so that only moderate text familiarity was achieved. Thus, rote memorization was not probable among these young emergent readers. (Further details are found in the Methods section.)

The text of the selected storybook had a high level of cohesive harmony which meant the children were

exposed to a highly cohesive text. Given a highly cohesive text read to the children by their teacher, this study asked the following questions: 1) What is the range of cohesive harmony in stories reconstructed by emergent readers? (2) Does the level of cohesive harmony in reconstructed texts reach linguistic significance? (3) Do patterns (i.e. repetition) within the original text appear in children's story reconstructions?

Method

Sample

The data came from 14 children who were part of a larger study (n=28) of inner-city kindergarteners that explored emergent literacy knowledge (Otto, 1990a). The subsample was composed of children who gave independent reconstructions of the selected storybook (omitting children whose reenactments were assisted); however, none of the children were reading conventionally.

Procedures

During the week prior to interviewing the children, their teacher read the selected book at established group storytimes, (about 3-4 times that week), to ensure moderate familiarity. She also engaged the children in discussing the book, asking comprehension questions about story events, characters, and vocabulary.

Children were not encouraged to recite story lines or to attempt to track the print. The focus remained on enjoying and comprehending the story.

The following week children were then interviewed. To control for uneven exposure, the book was removed from the classroom once interviews began. During the interview each child was asked to "read" the selected storybook to an adult. Audio recordings of their storybook readings were collected and transcribed for analysis. The stories were not conventionally read, since the children were all at pre-conventional/emergent reading levels.

Book selection. Mr. Gumpy's Motor Car (Burningham, 1973) (one of seven books in the larger study) was selected for use because it was a narrative with complex sentence structure that was well above the level of text that might result in simple memorization. The length of the text (75 t-units) also seemed sufficiently complex to discount simple text memorization.

Analysis

Cohesive harmony analysis was used to describe the text structure of the selected storybook and the children's readings of that storybook. Based on Halliday's (1985) functional grammar, cohesive harmony analysis involves procedures described by Halliday &

Hasan (1976), Hasan (1984), and Halliday (1985). This analysis determines how specific cohesion devices operate within and across clauses to form repeated patterns of semantic and syntactic information (people, places, roles, actions, sentence patterns). Through such repetitions or redundancies, meaningfulness and coherence is created and the message can be comprehended. Without going into elaborate details, cohesive harmony analysis involved the following steps (Based on Cox, 1987):

1. Stories are transcribed from audio tapes and parsed into modified t-units (Cox, 1987, Pappas, 1981).

2. Each text is reduced to its content words (tokens). Function words, e.g. prepositions, are eliminated. Verbs are changed to their root form. Grammatical cohesive devices are translated into their referent nouns.

3. Noun tokens are analyzed for semantic and identity relationships. Those determined to be related are placed in participant chains. Verb tokens are categorized as belonging to one of seven process categories (Halliday, 1985) and then placed in appropriate process chains. Peripheral tokens are those tokens not part of a participant or process chain. Ambiguous tokens are tokens whose referents are not

clear, hindering text comprehension. Because the role of ambiguous tokens in participant or process chains can not be determined, ambiguous tokens remain a separate, non-interactive category.

4. Implicit functional grammar roles are assigned to their verb category as suggested by Halliday (1985). Next, cohesive harmony interactions are noted by determining whether the same case grammar roles have been given to members of the same noun and verb chains across multiple t-units (Hasan, 1984). Tokens that are part of a chain are counted as "relevant tokens." Tokens whose functional grammar roles interact across t-units are counted as "central tokens."

5. From the above steps, two indices of cohesion are computed. The number of tokens involved in cohesive harmony interactions (central tokens, from step 4) is divided by the total number of tokens (relevant tokens, peripheral tokens, and ambiguous tokens) in the text. The resulting number is the cohesive harmony index-total (CHI-total). This index reflects the cohesiveness of the entire text.

The process of cohesive harmony analysis should not be assumed to be only simple counting, since the basis for items to be tallied results from an analysis of noun information, repeated verb processes, and functional

grammar roles.

Due to the high level of task difficulty (i.e. asking an emergent reader to read complex text) another index, the cohesive harmony index-chain (CHI-chain) was also computed as a way of examining young children's text-making knowledges while over-looking known problems (e.g. ambiguous referents). The CHI-chain is determined by dividing the number of tokens involved in cohesive harmony interactions (i.e. central tokens) by the number of relevant tokens (i.e. excluding peripheral tokens and ambiguous tokens). This second index reflects the cohesiveness of participant and process chains, disregarding tokens not part of any chain. As a result, the CHI-chain index indicates a higher cohesiveness than does the CHI-total index. The CHI-chain index may be a way of examining children's best efforts in creating cohesive text since only the chained tokens involved in semantically-related text (core text) compose the index. Rather than looking at the whole text, the CHI-chain index provides a way of examining the cohesiveness of core text made up of semantically-related tokens (participants and processes).

Cohesive harmony analysis was completed independently by two trained scorers. Throughout the process of analyzing the stories, numerous judgments

were made. For example, agreement between scorers was necessary in placing tokens in participant and process chains, in assigning case grammar roles to participant chain tokens, in identifying peripheral and ambiguous tokens, and in determining interactions between t-units, as well as the resulting cohesive harmony indices. For the above series of decisions, interrater agreement ranged from 82% to 91%.

Mr. Gumpy's Motor Car had a CHI-Total index of 1.00 and a CHI-chain index of 1.02 which indicated it was a highly cohesive text. The storybook's CHI-total and CHI-chain scores were then used as a basis for examining the cohesiveness of the children's readings of that storybook.

Results

Wide range of cohesive harmony

In children's reconstructions of Mr. Gumpy's Motor Car there was a wide range of cohesive harmony. The reconstructions ranged from having cohesive harmony that approached the original text (CHI-total=.94) to no cohesive harmony (CHI-total=.00).

Erika's story was characterized by a high level of cohesive harmony (CHI-total= .94). While her reading differed from the text in specific wording, it was highly cohesive (See Figure 1).

Insert Figure 1 about here

Although Erika's reconstruction departed from the original text, her deviations were in keeping with the story semantically. For example, in t-unit 16, Erika attributes the car as having no gas. In the original text the car is simply stuck in the mud. In t-unit 11, Erika's version has the boy commenting on the pretty flowers. The original text makes no reference to flowers. In both of these instances, the references to gas for the car and flowers in the countryside fit into already existing participant chains. In t-units 3 and 6 Erika used the same process token to describe the entry of Mr. Gumpy and his passengers into his car ("jumped in his motor car."). This specific language was not a part of the original text; however, it was constructed by Erika in a way that contributed to cohesive harmony.

At the other end of the range were the readings that contained no cohesive harmony. For example, in Jennifer's reading (See Figure 2), story segments accurately referred to events and characters in the story, however, the tokens (participant and process) were not linguistically tied together. Due to this lack of linguistic interaction between tokens, no

cohesive harmony was present. There was a proportionally larger number of ambiguous tokens whose referents were not specified in reconstructed text, which also contributed to the lack of cohesive harmony.

Insert Figure 2 about here

Tiffany's reading is representative of the median level of cohesive harmony (CHI-total=.56) found in the children's readings in the sample (See Figure 3). The length of Tiffany's reading was nearly as long in t-units (27) as Erika's (34), however, the level of cohesive harmony was considerably lower than Erika's (.56 v .94). Tiffany's reading was characterized by chains of participant and process tokens; however, a large number of peripheral and ambiguous tokens decreased the overall level of cohesive harmony. Although animal characters were a major part of the story, Tiffany only mentioned animals once in t-unit 1 and that was in list form with no process token (verb). Single mention tokens are peripheral since no chain is formed across t-units and interactions do not occur. Ambiguous references to <u>it,</u> <u>back,</u> <u>we,</u> <u>us</u>, and <u>get out (of ?)</u> also decreased the cohesive harmony since referents of these tokens were not clear.

Insert Figure 3 about here

Linguistically significant levels of cohesive harmony

In Hasan's (1984) work, a consistent correlation was found between readers' judgments of text coherence and cohesive harmony. For text independently judged coherent, central tokens composed fifty percent or more of the total tokens (CHI-total of .50 or more). Such text was then termed "linguistically significant" because it would be recognized by readers as being coherent. Eight of the 14 readings (57%) had CHI-total scores of .50 or higher. Given the support of a familiar story and book illustrations half of the kindergarten emergent readers were able to reconstruct a story that would be recognized as coherent or understandable by a listener.

The CHI-chain indexes of children's readings were much higher (11 of the 14 had CHI-chain scores of .50 or higher), indicating peripheral and ambiguous tokens present in their readings interfered with the reconstruction of cohesive text. Thus, some children reconstructed cohesive fragments but did not reconstruct the entire text with cohesive harmony.

Children were not instructed or informed in any way

that they would be asked to "read" the story. No rehearsals occurred. Thus, children's readings reflect first attempts in reconstructing the story for an audience (adult and animal toy).

Focus on patterned sections of text

The selected storybook was moderately patterned (i.e. 45% of the t-units were patterned similarly to one or more other t-units). This is not unusual as children's storybooks frequently contain patterned text. Several of the children seemed to focus and elaborate upon this patterning when reconstructing the story. The reconstruction and elaboration of patterned text was very evident in six of the children's readings. In these readings, children reconstructed two of the three sections of patterned text found in the original text, and also extended the patterned text or added their own section of patterned text.

For example, Nathan reconstructed the patterned sequence where the children and animals ask for a ride and extended the pattern by having the would-be passengers ask separately if they could ride. (See Figure 4.) In the original text this is combined into one complex sentence.

Insert Figure 4 about here

In Tiffany's reading (Figure 3), she created her own version of t-units 50-57 as she said, "They pushed, scrinched, and scrinched" (t-units 21 & 22).

It appears that for some children the patterned text was more memorable and was more easily reconstructed than non-patterned text. This indicates children's recognition of pattern as a part of the original text and knowledge of how similar patterns can be used in their own attempted readings.

Discussion and Implications

Cohesive harmony analysis proved to be an effective mechanism for examining the textual nature of young children's emergent storybook readings. Extending the use of cohesive harmony to emergent readings, however, required specific adaptations of procedures used with conventional readers' and writers' texts. For example, simple repetitions of text judged to be "stalling" were omitted from the reading prior to cohesive harmony analysis. So were false starts, asides, and obvious self-editings.

Although very time consuming and complex, cohesive harmony analysis allowed a more precise description of the ways children reconstructed texts, providing potential insights into developmental patterns.

This method of analysis has now been used

successfully with a range of composition-related tasks, i.e. oral monologues, dictated stories, stories and texts created on paper, and children's storybook readings (Cox, 1990; Otto, 1990b). Having a method of analysis that is useful with different tasks promises to provide a more thorough description of the development of compositional abilities.

This study along with other recent work (Otto, 1990b; Cox 1990) documents the presence of linguistically significant levels of cohesive harmony in young children's composition-related behaviors (oral monologues, dictated stories, and stories created on paper and read by children as well as emergent reading of storybooks). The composition related task explored in this study provided opportunity for children to reconstruct the story text with support from their recall of the story through their linguistic memory and through the illustrations provided in the book. If the development of text compositional knowledge is continuous, children's experiences with storybooks may provide early awareness of cohesive text as well as models for children's early compositions. Longitudinal research is necessary to increase our understanding of the path of development for cohesive harmony in composition-related tasks among young emergent readers.

Longitudinal research would follow emergent readers as they become proficient readers, and attempt to identify factors associated with the development of text-making knowledges.

For several children patterned language appeared to be a salient feature in their reconstruction of the story text and in their unique additions to the story. Further study of text types varying with respect to patterning will be important in determining the role of patterned text in children's ability to create cohesive text.

In addition, continued exploration of cohesive harmony within the full-range of composition related tasks would increase our understanding of children's text-making knowledges.

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Figure 1: Erika

1) Mr. Gumpy and his motor car.
2) Mr. Gumpy put his suitcase in his motor car.
3) Then he jumped in his motor car
4) and he drived out of his house.
5) The cat and the rabbit and the pig and the goat and the cow and the lamb and the chicken and the hen and the boy and the girl wanted to come with Mr. Gumpy in his motor car.
6) Then everyone jumped in his motor car
7) and they went for a walk, in his motor car.
8) They went through the woods
9) and then they stopped in the woods.
10) They still kept driving and driving.
11) Then the boy said, "Look, what pretty flowers!"
12) Then they saw the sun came out,
13) and they went down the hill
14) and then it started to rain,
15) and Mr. Gumpy stopped the motor car because it was raining.
16) Then the car had no gas.
17) Then he said that somebody gotta push,
18) and the kid said "Not me, I won't push."
19) And the rabbit said, "I won't push."
20) And the cow said, "I won't push."

Figure 1, continued.

21) And the man said, "I won't push."

22) And the hen said, "I won't push."

23) And the rooster said, "I won't push."

24) And the girl said, "I won't push."

25) And the boy said,"I won't push."

26) "I'm too young to push."

27) Then, Mr. Gumpy turned on his motor car

28) and the car wouldn't start.

29) And all, and the hen and the boy and the pig and... started

30) and the cat pushed,

31) but they couldn't,

32) and then the motor car started to run.

33) and he drived home,

34) and he said, "Another day come back to take a walk in the motor car."

Figure 1, continued.

Segment of Cohesive Harmony Analysis-Erika's Reading

Participants					Processes		
Children	Animals	Mr.G.	Car	Home	Mental	MA-Range	PT
		*Mr.G. [actor]	*car [loc]			*put	suitcase
		*he [actor]	*car [loc]			*jumped	
		*he [actor]		house [range]		*drived	
boy,girl [sensers] *[actors]	cat...hen [sensers] *[actors]	Mr.G. [phen] [range]	*car [loc]		wanted	*come	
everyone *[actors]	everyone *[actors]		car *[loc]			*jumped	

Totals: Total tokens= 149
Relevant tokens= 141 Peripheral tokens= 2
Central tokens= 140 Ambiguous tokens= 6

CHI-total= 140/149 = .94 CHI-chain= 140/141 = .99

Note: PT=Peripheral tokens. MA-Range= Material action with a range. An * indicates interaction between tokens in two or more t-units, i.e. central tokens. Roles are indicated in [brackets].

Figure 2: Jennifer

1) In go in the car.

2) He saw all the kids.

3) Asked, can we go?

4) They had to get out

5) and push.

Cohesive Harmony Analysis

Participants		Processes				
Car	Kids	MA-Range	Mental	Verbal	PT	AT
(car)		go			car	-who-
	(kids)		(saw)		kids saw	he
		can go		asked		we -who-
		get				they -where-
		push				-they-

Note: PT= Peripheral tokens; AT= Ambiguous tokens. Tokens in parentheses become peripheral because one token does not make a chain. Tokens between -hyphens- indicate ellipsed participant and process tokens. No interactions between tokens across t-units occurred in Jennifer's reading.

Figure 3: Tiffany

1) kids, the cat, the pig, the goose, the sheep, the cow, the goat, the rabbit, the dog, the kitten, the cat, the kids, and the (pause)

2) that's all.

3) It's going to be a big squash.

4) "I don't like these clouds," Mr. Gumpy said.

5) "We better go way back."

6) "We should put over the shade," Mr. Gumpy said.

7) Once we get out

11) it started to rain.

12) Somebody has to go out there

13) and push the car.

14) The cat said, "No."

15) "I'll ruin my fur."

16) The bunny said, "No."

17) "I'm too old."

18) The wheels were turning but,

19) Two of you, some of you have got to go out

20) and push

21) They pushed,

22) scrinched and scrinched.

23) Mr. Gumpy said, "Keep on pushing."

24) "Do not stop."

25) "It started to go," Mr. Gumpy said.

Figure 3, continued.

26) "Let's go home over the hill."

27) "There will be enough time for a swim," Mr. Gumpy said.

Segment of Cohesive Harmony Analysis-Tiffany's Reading

Participants			Processes					
Others	Mr.G.	Weather	Mental	MA-Range	Verbal	Attrib:	PT	AT
(kids.. cat)							kids.. cat	-verb-
							that's all	
						is	squash	it
	I [senser]	clouds [phen]	don't like					
	Mr.G. *[speaker]				*said			
	we *[actor]			*go				we -where-
	we *[actor]			*put				shade
	Mr. G. *[speaker]				*said			we

(Reading continues....)

Totals: Total tokens= 88
Relevant tokens= 62 Peripheral tokens= 18
Central tokens= 49 Ambiguous tokens= 8

CHI-total= 49/88 = .56 CHI-chain= 49/62 = .79

Figure 3, continued.

Note: PT=Peripheral tokens. AT=Ambiguous tokens. MA-Range=Material action with a range. Attrib= Attributive. An * indicates interaction between tokens in two or more t-units, i.e. central tokens. Tokens between -hyphens- indicate ellipsis.

Figure 4: Segment of Nathan's Reading

1) One day Gumpy went out for a ride in his motor car.

2) Put some oil in his car.

3) The kids said, "Can we go?"

4) "Mr. Gumpy," the dog said, "Can I go?"

5) And the bunny said, "Can I go?"

6) The dog said, "Can I go, too?"

7) The cat said, "Can I go?"

8) The kitten said, "Can I go?"

9) They all got inside the car.

(Reading continues....)